BENTONITE CARBON COMPOSITE POLYVINYL-COATED WIRE ELECTRODE FOR LEAD DETECTION AS AN ENVIRONMENTAL SENSOR

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Keywords:C-PVC,CWE,bentonite lead ,wastewater

Abstract

The composite carbon –polyvinyl chloride (C-PVC) with bentonite (natural zeolite) as an ionophore in a selective and sensitive coated wire electrode (CWE) for lead determination by potentiometric method is demonstrated. The sensor shows a good Nernstian slope of 29.42 ± 0.5 mV per decade in wide linear range concentration from 1.0×10^{-7} to 1.0×10^{-3} M for $Pb(NO_3)_2$.The detection limit of this electrode 5.0×10^{-8} M of $Pb(NO_3)_2$, and was found to be very selective, and usable in pH range of 3.0 – 6.7.Selectivity was obtained over 19 various metal ions. The electrode is reproducible and stable for a period of three months. The proposed electrode has been used as an indicator electrode in potentiometric titration with EDTA .This kind of CWE was successfully applied in determination of lead in industrial wastewater and river's water as real sample.

REFERENCES

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